AUTOMOTIVE SYSTEM RELIABILITY SIMULATION SOFTWARE

Animesh Dey, Robert Tryon, and Loren Nasser
VEXTEC Corporation,
Brentwood, TN 37027
adey@vextec.com, rtryon@vextec.com, lnasser@vextec.com

Richard Rudy and Marlon Forrest
DaimlerChrysler Corporation
Auburn Hills, MI 48326
rjr11@daimlerchrysler.com, mdf6@daimlerchrysler.com

KEYWORDS

Reliability, Warranty, Software, Monte Carlo, Simulation

ABSTRACT

This paper presents an overview of simulation software used for prediction of repairable system reliability during vehicle concept development. The software uses Monte Carlo simulation to virtually test many automotive systems. Reliability is estimated using a Non-Homogeneous Poisson Process (NHPP).

A MS-Windows based computer program called *SimSARRS-System* was developed to simulate automotive warranty incidents and predict system reliability. The software computes rate of occurrence of failure (ROCOF), incidents per 100 (I/100), reliability and the trip reliability.

In addition to being used to predict reliability, *Sim SARRS – System* can be used to evaluate the adequacy of traditional engineering test programs. The amount of traditional testing typically conducted is limited by simple economics. This software can be used to evaluate planned test programs from a cost/benefit standpoint.